DETAILED ACTION

1. This action is in response to the Amendment filed on 01/06/2009. After thorough search, application history, double patenting search, and in light of the prior art made of the record, claims 1-6 and 7-12 are allowed.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview and email with Applicant's representative Joseph M. Lafata, Registration No. 37,166 on 04/06/2009.

Please amend the claims, which were filed on 01/06/2009 with new version as following:

1. (Currently Amended) A multi-layer user management method implemented by a computer for multicasting proxy, comprising:

dividing a user management for multicasting groups into three layers: management at an interface layer for controlling multicasting characteristics corresponding to interfaces, management at a data link layer for controlling multicasting characteristics corresponding to data links, and management at user layer for controlling multicasting characteristics corresponding to particular users, and at each

layer, setting control blocks that respectively comprise multicasting characteristic data corresponding to said each layer;

establishing a data relationship among the three layers of control blocks; and

controlling a network device to manage a user of a group of the multicasting groups using the data relationship among the three layers of control blocks including:

finding a first interface layer control block according to a data structure of an interface of net (IFNET) that has received a multicasting packet; then judging multicasting characteristics of the multicasting groups which are defined in the found interface layer control block to determine whether to continue successive processing; if so, performing the next steps, otherwise ending;

finding a first data link layer control block according to a data relationship between data link layer control blocks and the first interface layer control block; then judging multicasting characteristics corresponding to data links of the multicasting packet to determine whether to continue successive processing; if so, performing the next step, otherwise ending; and

finding a first user layer control block according to a multicasting group IP and user attributes; then adding, deleting or modifying corresponding user information in the first user layer control block.

2. (Original) The method of Claim 1, wherein said controlling multicasting characteristics corresponding to interfaces includes: judging whether to allow multicasting applications at an interface, judging whether to allow multicasting

applications at a user side or a network side, judging whether to allow tying multicasting resources or multicasting groups, limiting the number of members of a multicasting group or limiting the number of multicasting groups.

3. (Previously Presented) The method of Claim 1, wherein said controlling multicasting characteristics corresponding to data links is limiting the number of members of a multicasting group when employing a core edge layer network device.

4. (Original) The method of Claim 1, wherein said controlling multicasting characteristics corresponding to data links is forwarding only one multicasting packet for all members of the same multicasting group at the same data link when forwarding data.

5. (Original) The method of Claim 1, wherein the data relationship is established through a linking-list structure or a relational database structure.

6. (Original) The method of Claim 1, wherein the data relationship is established through a three-dimensional linking-list data structure which links each control block with linking-lists or arrays; the three dimensions of the three-dimensional linking-list data structure comprise data link including interface, multicasting group and user IP.

7. (Cancelled)

8. (Previously Presented) The method of Claim 1, further comprising:

if no proper data link control block is found when finding a first data link control block, adding a new data link layer control block; and

establishing a data relationship among interface layer control blocks, user layer control blocks and the new data link layer control block.

9. (Previously Presented) The method of Claim 1, wherein said managing the user of the multicasting group is forwarding control, further comprising:

making data link layer devices attend multicasting management with device cluster control technique.

10. (Previously Presented) The method of Claim 1, wherein said managing the user of the multicasting group is performing flow charging control to the user of the multicasting group; and

said performing flow charging control to the user of the multicasting group comprises:

recording the flow of multicasting packets having been forwarded with a device forwarding program and charging the user when the user receives the multicasting packets.

11. (Previously Presented) The method of Claim 3, wherein the core edge layer network device is an Edge Service Router (ESR).

12. (Currently Amended) A multi-layer user management method implemented by a computer for multicasting proxy, comprising:

dividing a user management for a multicasting group into an interface layer management, a data link layer management, and an user layer management,

controlling multicasting characteristics corresponding to multicast interfaces via the interface layer management,

controlling multicasting characteristics corresponding to data links via the data link layer management, and

controlling multicasting characteristics corresponding to users via the user layer management,

providing a control block that is for and that has multicasting characteristic data corresponding to each of the interface layer management, the data link layer management, and the user layer management;

establishing a data relationship among the control blocks; and

controlling a network device to manage a user of the multicasting group by using the data relationship including:

finding a first interface layer control block according to a data structure of an interface of net (IFNET) that has received a multicasting packet; then judging multicasting characteristics of the multicasting groups which are defined in the found

interface layer control block to determine whether to continue successive processing; if so, performing the next steps, otherwise ending;

finding a first data link layer control block according to a data relationship between data link layer control blocks and the first interface layer control block; then judging multicasting characteristics corresponding to data links of the multicasting packet to determine whether to continue successive processing; if so, performing the next step, otherwise ending; and

finding a first user layer control block according to a multicasting group IP and user attributes; then allowing multicasting at the network device including adding, deleting or modifying corresponding user information in the first user layer control block.

Reasons for Allowance

3. The following is an examiner's statement of reasons for allowance: The closest prior art of record US Patent Pub. 2002/0004827, Ciscon et al. teach a method for providing broadband communications over a multi-layered network having a plurality of Open System Interconnection (OSI) Reference Model layers functioning therein includes monitoring at least one OSI reference model layer functioning in the multi-layered network. A quality of service event is determined whether to have occurred in the multi-layered network. The quality of service event is determined to have occurred at a layer N in the OSI reference model. Network provisioning is changed at a layer less than N in response to the quality of service event, and a signal is provided when the network provisioning at the layer less than N has been changed.

4. Srivastava, US Patent No. 6,684,331, teaches an approach for establishing secure multicast communication among multiple multicast proxy service nodes of domains of a replicated directory service that spans a wide area network. The domains are organized in a logical tree and each domain stores a logical tree that organizes the multicast proxy service nodes. In Applicant's invention, "dividing a user management for multicasting groups into three layers: management at an interface layer for controlling multicasting characteristics corresponding to interfaces, management at a data link layer for controlling multicasting characteristics corresponding to data links, and management at user layer for controlling multicasting characteristics corresponding to particular users, and at each layer, setting control blocks that respectively comprise multicasting characteristic data corresponding to said each layer" and "establishing a data relationship among the three layers of control blocks", as claimed in independent claims 1 and 12, is not taught or suggested by Ciscon et al. in view of Srivastava.

5. Some other art that is presented of the record but is not same as invention, is, Takahashi, US Patent No. 6,046,989 teaches a musticast connection management system including: a registration unit for searching, in response to a request issued from a subscribing multicast service user for registration of connection.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to UMAR CHEEMA whose telephone number is (571)270-3037. The examiner can normally be reached on M-F 8:30AM-5:00PM.

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Jr. Vaughn can be reached on 571-272-3922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/U. C./
Examiner, Art Unit 2444
/William C. Vaughn, Jr./
Supervisory Patent Examiner, Art Unit 2444